



Master in Evidence-Based Practice e Metodologia della Ricerca Clinico-assistenziale



Centro Studi EBN

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Protocol Systematic Review

The effect of immediate postoperative extubation on the length of stay in intensive care unit, after orthotopic liver transplantation. A systematic review

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Question

The quantitative objective is to identify the effectiveness of immediate postoperative extubation on length of stay in intensive care unit (ICU) in adult patients after orthotopic liver transplantation.

Background

Mechanical ventilation is a method to mechanically assist when patients cannot do so on their own, and must be done so after invasive intubation with an endotracheal or tracheostomy tube through which air is directly delivered.

Most importantly complications related to ventilation are nosocomial infections, hemodynamic effects such as decreasing cardiac output, barotraumas. All these factors may contribute to increase the length of stay in ICU.

Patients undergoing liver transplantation do not always benefit from prolonged positive-pressure ventilation because decrease blood flow in the splanchnic region and causes congestion of the drainage areas of the inferior vena cava and hepatic veins and may lead to altered graft oxygenation and consequent damage. Therefore spontaneous ventilation may be beneficial for patients both in the hemodynamical stability and in hepatic venous drainage and donor graft circulation. ^{1 2 3}

Immediate postoperative extubation, in patient undergone OLT, could be successfully performed in a large number of patients.

Cammu G *et al.* divide Criteria, for immediate postoperative extubation, in preoperative, such as absence of acute liver dysfunction and encephalopathy, and intraoperative, such as good donor liver function, hemodynamically stable, blood transfusion less than 10 U packed, alveolar-arterial oxygen gradient less than 200 mmHg. ⁴

Early extubation has been used in cardiac surgery for some time and in carefully selected patients it has had a favourable outcome⁵. Biancofiore *et al.* reported that very early extubation, performed within 3 hours, was feasible and safe in a large number of liver transplant recipient⁶.

Types of participants

The quantitative component of this review will consider studies that include adult patient after liver transplantation.

Types of intervention

The quantitative component of the review will consider studies that evaluate early extubation (within 3 hours following surgery)

Types of outcome

Quantitative (use for module2):

This review will consider studies that include length of stay in ICU (days).

Types of studies

The quantitative component of the review will consider any randomised controlled trials; in the absence of RCTs other research designs, such as non-randomised controlled trials and before and after studies, will be considered for inclusion in a narrative summary to enable the identification of current best evidence regarding immediate extubation in patients undergone liver transplantation. If we don't find any RCTs or effectiveness study, we will consider expert opinions.

Strategy research

The search strategy aims to find both published studies. A three-step search strategy will be utilised in each component of this review. An initial limited search of MEDLINE and CINAHL will be undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe article. A second search using all identified keywords and index terms will then be undertaken across all included databases. Thirdly, the reference list of all identified reports and articles will be searched for additional studies.

The databases to be searched include:

Medline
Cochrane
Cinahl
Embase

Limit:

Adults patients
Only trial in English and Italian

Initial keywords to be used will be:

Liver transplantation
Extubation

Assessment of methodological strategy

Quantitative papers selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardised critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI), and the opinion paper selected reviewed using standardised critical appraisal instruments from the Joanna Briggs Institute Narrative Opinion and Text Assessment and Review Instrument (JBI-NOTARI).(Appendix V).*

*Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Data collection

Quantitative data will be extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI and to transfer conclusions take out from the original paper using JBI-NOTARI (appendix VI)

The data extracted will include specific details about intervention, population, study methods and outcomes of significance to the review question and the specific objectives.

Data synthesis

Quantitative papers will, where possible be pooled in statistical meta-analysis using the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) and (JBI_NOTARI). All results will be subject to double data entry. Odds ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed using the standard Chi-square. Where statistical pooling is not possible the findings will be presented in narrative form.

¹ Carton EG, Plevak DJ, Kranner PW, Rettke SR, Geiger HJ, Coursin DB. Perioperative care of the liver transplant patient: Part 2. Anesth Analog 1994; 78:382-399

² Jullien T, Valtier B, Hognant JM. Incidence of tricuspid regurgitation and cava backward flow in mechanical ventilated patients. A color Doppler and contrast echocardiographic study. *Chest* 1995; 107: 488-493

³ Rossaint R, Slama K, Jaeger M, et al. Fluid restriction and early extubation for successful liver transplantation. *Transplant Proc* 1990; 22: 1533-4

⁴ Cammu G, Decruyenaere J, Troisi R, Hemptinne B, Colardyn F, Mortier E. Criteria for immediate postoperative extubation in adult recipients following living-related liver transplantation with total intravenous anesthesia. *Journal of Clinical Anesthesia* 2003; 15: 515-519

⁵ Cheng DC, Karski J, Peniston C, et al. Morbidity outcome in early versus conventional tracheal extubation after coronary artery bypass grafting: a prospective randomized controlled trial. *J thorac cardiovasc surgery* 1996; 112: 755-64

⁶ Biancofiore G, Romanelli AM, Bindi ML, et al. Very early tracheal extubation without predetermined criteria in a liver transplant recipient population. *Liver transplantation* 2001; 7: 777-782